

7 being modulated by a voiceband carrier, the data exchange further  
8 comprising a data pump capable of demodulating the data signals  
9 from the network line for transmission on the packet based network  
10 and remodulating the data signals from the packet based network  
11 with the voiceband carrier for transmission on the network line. H

47. The signal processing system of claim 46 wherein the data  
exchange further comprises a rate negotiator capable of negotiating  
a data rate with a first telephony device coupled to the network  
line, and renegotiating the negotiated data rate with a system  
coupled to the packet based network, the system comprising a second  
telephony device. H

48. The signal processing system of claim 46 wherein the data  
exchange further comprises a timing recovery circuit having an  
accumulator which accumulates the data signal from the packet base  
network in a first phase, and a combiner which combines the  
accumulated data signal with the data signal from the packet based  
network in a second phase. H

49. The signal processing system of claim 46 wherein the  
voice exchange comprises a canceller to cancel a far end echo on  
the voice signal from the network line, and a bypass to selectively  
enable the canceller. H

50. The signal processing system of claim 46 wherein the data  
exchange further comprises a quantizer to quantize the data signal  
from the packet based network, a divider to generate a scaling  
factor by dividing the quantized data signal by the data signal  
from the packet based network, and a multiplier to combine the  
scaling factor with the data signal from the packet based network.  
H

1 ~~4~~ 51. The signal processing system of claim 46 wherein the  
2 voice exchange comprises a combiner to apply gain to the voice  
3 signal from the network line, an estimator to estimate a  
4 characteristic of the voice signal with gain, and a bypass to  
5 selectively couple one of the voice signal and the voice signal  
6 with gain to the packet based network based on the estimated  
7 characteristic. ~~4~~

1 ~~4~~ 52. The signal processing system of claim 46 further  
2 comprising a resource manager that estimates voice exchange  
3 complexity and reduces the voice exchange complexity when the  
4 estimated complexity exceeds a threshold. ~~4~~

1 ~~4~~ 53. The signal processing system of claim 46 wherein the  
2 voice exchange comprises a detector configured to receive the voice  
3 signal from the network line, the data signal having a plurality of  
4 samples, and to detect from a portion of the samples whether the  
5 voice signal from the network line comprises a tone. ~~4~~

1 ~~4~~ 54. The signal processing system of claim 46 wherein the data  
2 exchange further comprises spoofing logic to selectively generate  
3 spoof data for a telephony device coupled to the network line in  
4 response to a format of the data signal received from the packet  
5 based network, the spoof data being generated with a format based  
6 on the format of the received data signal. ~~4~~

1 ~~4~~ 55. The signal processing system of claim 46 wherein the  
2 voice exchange comprises a spectral analyzer to analyze spectral  
3 content of the voice signal from the network line and generate an  
4 indicator if the spectral content of the signal satisfies a  
5 criteria, and a cadence processor to monitor a temporal